Tagging Technology: A public workshop

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A public workshop

Edinburgh, 10th May 2010

Tagging Technology: Is the Future Bright?
A public workshop
Inspace, Edinburgh, 10th May 2010

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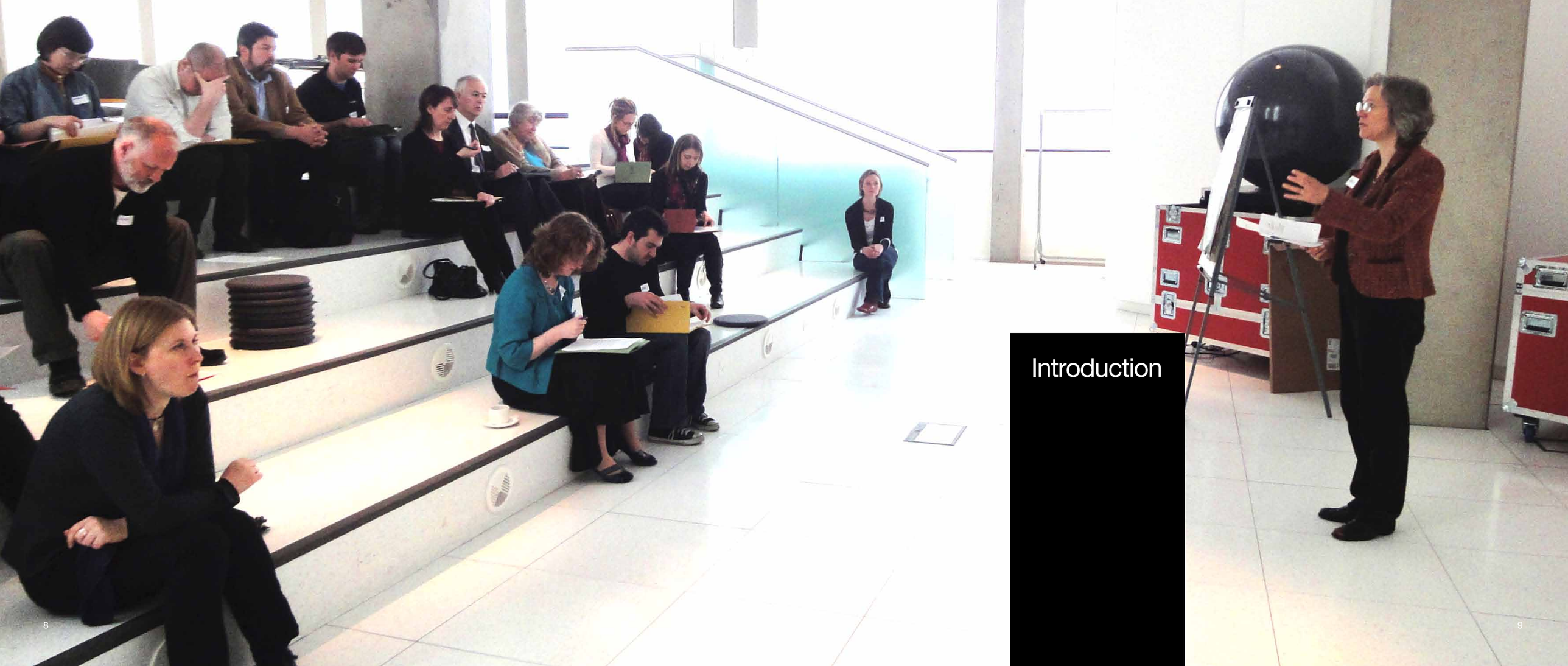

Introduction

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As RFID (Radio Frequency Identification) and other forms of tagging technologies are being adopted for logistical purposes by commercial industries and governments alike, there is a real sense of uncertainty amongst [members of] the UK public about the possible implications of a tagging culture.

While some people argue for the social, economic and technical benefits of tagging, its connections with surveillance and a perceived loss of agency and control continue to challenge widespread public acceptance of the technology.

In May 2010, a team of academics held a workshop in Edinburgh with the intention of better understanding the public's concerns for tagging technologies. The outcomes of the event are documented here in this book, and are helping to inform the research of a UK Research Council Digital Economy project that uses a fresh tactic to encourage the public to actively use tagging technologies themselves and to reap the benefits. TOTeM (Tales of Things and Electronic Memory) is a three year funded, multi-institutional, pan-UK project that focuses on the archiving of people's memories associated with specific objects.

The objective of the workshop was to provide an open platform for discussion on the public's fears and concerns around RFID and the tagging of objects and people. The day was organised in such a way as to allow participants to take part in semi-structured discussions that were interspersed by presentations and demonstrations to further inform debate.

The workshop was facilitated by Dr. Wendy Faulkner who is an Honorary Fellow at the Institute for the Study of Science, Technology and Innovation (ISSTI) at the University of Edinburgh. Wendy chaired the day and offered an objective position in order to sustain an open and balanced exploration of the issues involved.

The four hour workshop attracted twenty two participants from Scotland, all of whom work in cultural, academic, commercial and heritage sectors. The day began and ended by taking a brief 'temperature' test of people's excitement/concerns about the concept of tagging and to see if the event had provided insight into the subject.

Following coffee and introductions, the afternoon was then split into five stages:

1. A short task intended to raise the primary concerns that people have with tagging technologies.

2. A carousel of round table discussions exploring answers to four questions provided by the workshop team.

3. Two subject specific talks by Dr. Kerstin Leder on RFID and Privacy, and Dr. Chris Speed on The Internet of Things.

4. A short brainstorming session to illicit future visions for the technology.

5. Small group sessions exploring what people would do with the technology.

These five steps offered the team a framework in which a group of strangers, all of whom had mixed experiences of tagging technologies, could begin approaching the nature of the systems involved and the potentials and implications for their use.

Debate was complex and opinions upon the benefits and threats for tagging became more subtle throughout the workshop, with individuals' views swinging dramatically from blind enthusiasm to extreme paranoia.

This book offers a document of the event and uses photographs of the activities to provide the reader with a feel for the occasion, but also images of the outcomes from each activity. The book offers the TOTeM research team a valuable resource in understanding the tensions present in working within a field that challenges many social, ethical and technological questions. As RFID creep (as Preemptive Media describe it) enters more aspects of our lives, questions about the ownership of data, the transparency of its management, and the pervasive nature of networks will increase. The editors hope that this book may also offer a useful insight into the public psyche at a time when only a handful of our artefacts have RFID chips within them, compared to the many thousand that are predicted by 2020.

What are your gut feelings about tagging technology?

Participants were asked to introduce themselves to a fellow delegate and spend a short time telling each other what, if any, gut feelings the topic of tagging technology evokes in them. Participants were then asked to reflect individually and write down, as clearly and simply as possible (with felt pens) on up to three separate Post-It™ notes their three most dominant feelings.

Excitement
That the technology could be used to tag objects in the built environment that could then be accessed to inform visitors etc.

Amusement
That we think it matters

Interested
Design possibilities

Frustration
People won't see the positives

Intrigue
Want to find out more about the tech

Excitement
Objects with memory
Marketing perspective
Connectivity, virtual and real worlds
Social uses
Tagging objects for reminiscence
Alternative way to disseminate information
Possibilities of applications/potential

Confused
ID cards
Unsure
ID/database uses

Need
Literacy
Reverse engineering (for any tech)

Curious
To know more
About public's general interest
Criminality

Curious
About general public's interest

Uncertain
About its impact and everyday life

Wary
Age related technologies

Indifferent

Paranoia
Over use of taggging

Intrigued about possible uses

Concerned
Civilian perspective
Data misuse
As yet unknown health implications of clusters
Invisibility
Ethics
Personal data and how it is used
About future proofing the technology

Challenged

Fearful / Uncertain
Open to misuse

Ignorant of technology

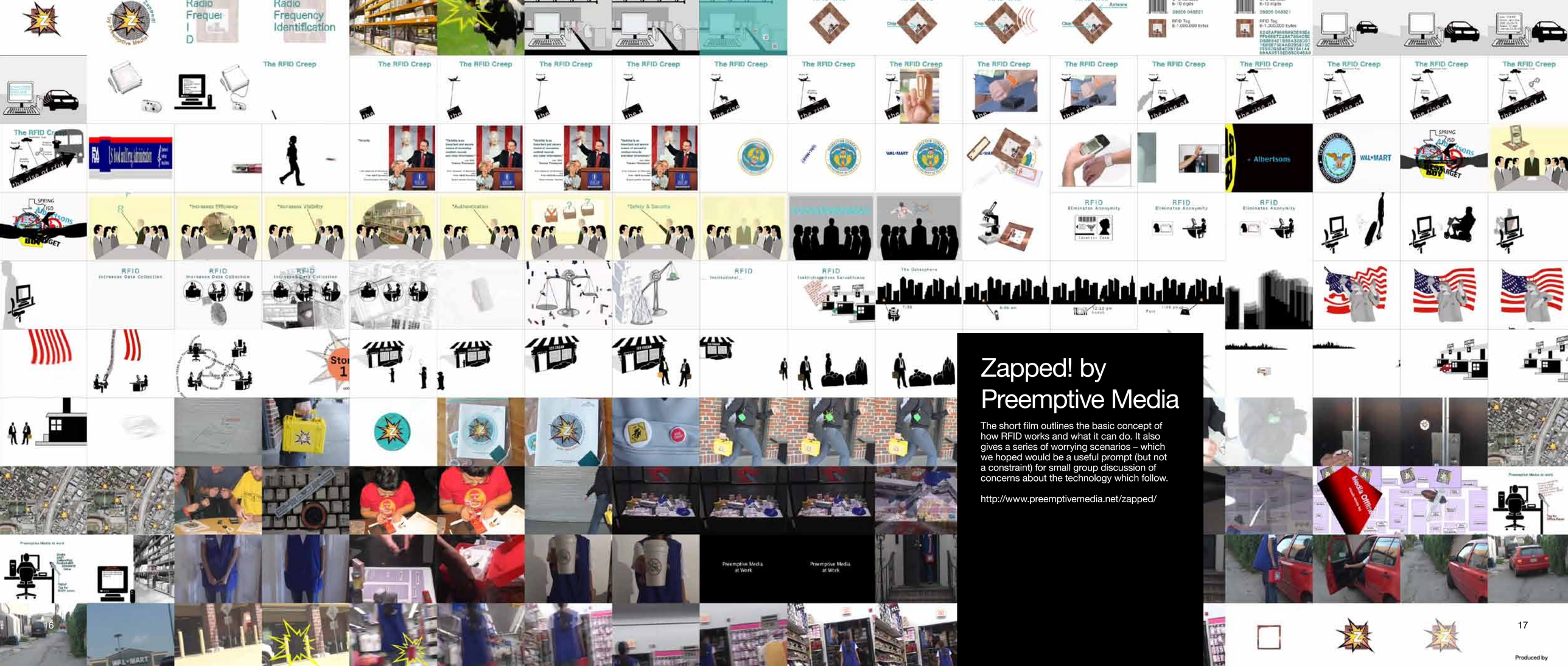
Worried
Big brother
Consent
Records

Fear
Public authorities objectives

Sceptical
Commerce

Contempt
Towards folk who believe

Anger that it might happen



Zapped! by Preemptive Media

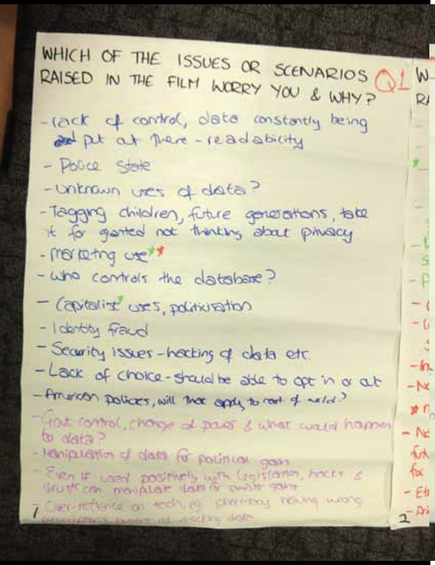
The short film outlines the basic concept of how RFID works and what it can do. It also gives a series of worrying scenarios – which we hoped would be a useful prompt (but not a constraint) for small group discussion of concerns about the technology which follow.

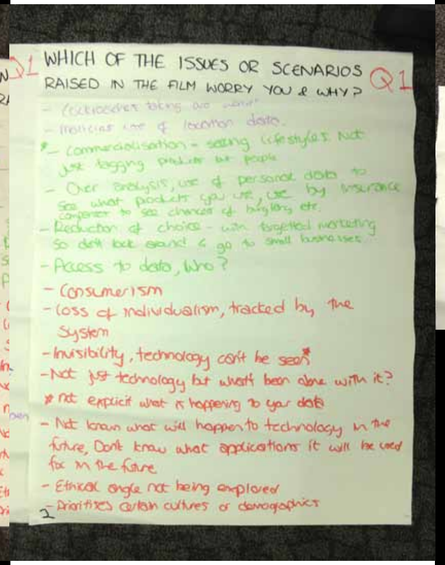
http://www.preemptivemedia.net/zapped/

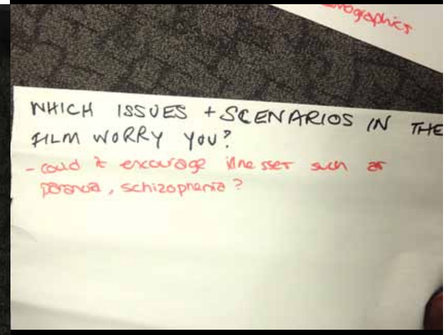
Produced by

Carousel discussions on concerns & possible solutions

Four small groups were formed and asked to move around static flipcharts that were located in corners of Inspace. Each flipchart was headed with one of four questions that each group discussed in turn, with a facilitator recording their responses. The idea was that each successive group reflected on, elaborated and added to the answers of the previous groups. A process that would yield a fairly comprehensive view in a short time without each group 'reinventing the wheel'.







Lack of control, Police state

Unknown uses of data and who has access?

Tagging children; future generations will take tagging for granted

Capitalist uses, politicisation

Identity fraud

Security issues – hacking of data etc.

Lack of choice – should be able to opt in or out

American policies – will they apply to the UK?

Governemment control it but what would happen to the data if there was a change of power?

Manipulation of data for political gain

Even if used positively with legislation, hackers and viruses can manipulate data for sinister gains

Over-reliance of technology, lacking human checks

Cockroaches taking over the world!

Malicious

Commercialisation – selling lifestyles, not just tagging products but people

Over analysis and use of personal data to see what products people use. Also use for insurance companies to see chances of burglary etc

Reduction of choice due to targeted marketing so that we no longer have to shop around. This in turn would harm smaller businesses

Loss of individualism – tracked by the system

Invisibility - technology can't be seen, it is not explicit what is happening to your data

Don't know what the data will be used for in the future

Ethical angle is not being explored

Prioritises certain cultures or demographics

Possibility it could encourage illnesses such as paranoia or schizophrenia

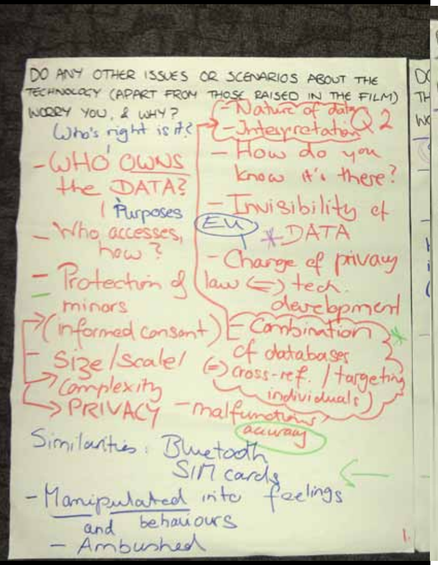
Which Issues and Scenarios in the film worry you?

As well as offering an easy to understand summary of RFID and tagging technologies, Zapped by Preemptive Media, offers a deeply critical perspective upon the role of RFID within society. Participants were invited to discuss the issues and scenarios that were presented in the film that worried them most.

Whilst many of the outcomes can be mapped directly to the narrative of the film, the discussions did provoke some interesting insights. In particular the difference between US and UK legislation and the lack of knowledge that participants had for how people might be protected in different ways in different countries.

Much of the discussion was led by personal considerations of how the technology might affect each participant. Consequently personal identity was high on the agenda, but some participants began to explore the impact upon existing business models.

Towards by the end of this session, members had begun to explore the darker side of tagging and were beginning to develop a deep concern about the nature of data and its exchange between different insititutions. Participants had recognised that the threat was not in the tag (RFID or barcode) but in the database where data is stored, who owns it, and its ability to be correlated with other data to form conclusions.



Who owns the data and whose right is it?

Who has access to the data and how?

Protection of minors

Informed consent

Size/scale/complexity, global issues

Privacy issues, possibilities of malfunctions and inaccuracy

Similar to Bluetooth and SIM cards (data already collected)

Manipulated into feelings and behaviours

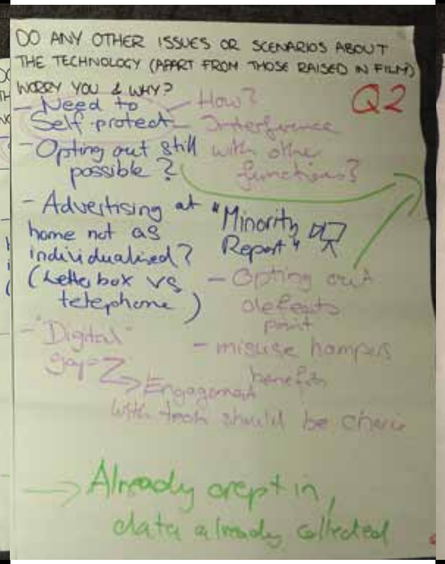
Ambushed

Interpretation

Invisibility of data, how do you know it is there?

Change of EU privacy law

Combination of databases and cross referencing, targeting individuals more easily



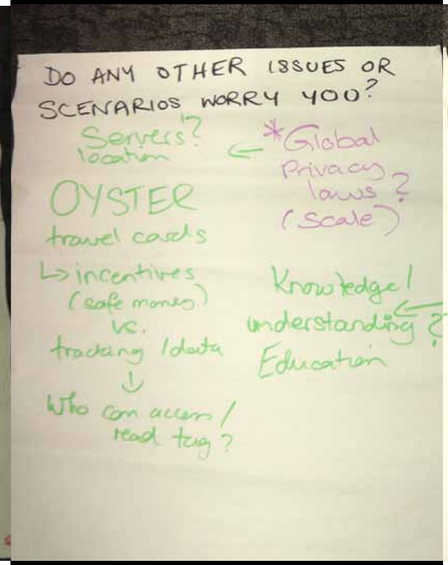
Need to self-protect, but how? Interface with other functions?

Opting out still possible? (although opting out defeats the point)

Advertising at home not as individualised? (letterbox vs telephone)

"Digital" gaps; engagement should be choice

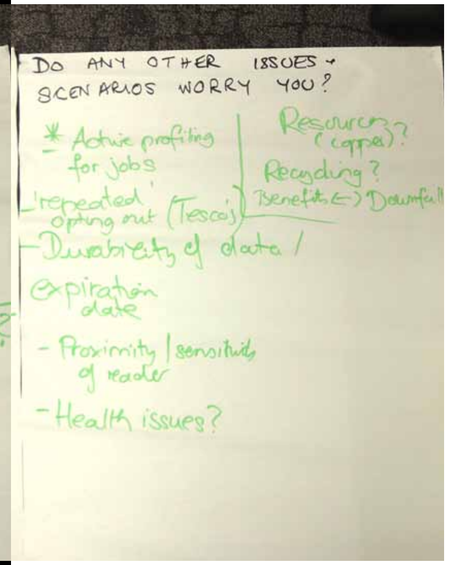
Misuse hampers benefits



Where are the servers located?

Oyster/travel cards (incentives to save money versus tracking data, who can access/read the tag?)

Lack of knowledge and undertsanding e.g. when does the data expire?



"Repeated" opting out (Tesco)

Durability of data

Proximity/sensitivity of reader

Health issues?

Resources (copper)?

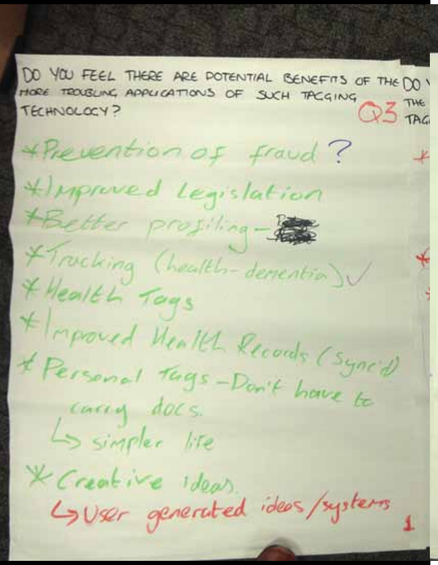
Recycling?

Do any other issues or scenarios (apart from those raised in the film) worry you and why?

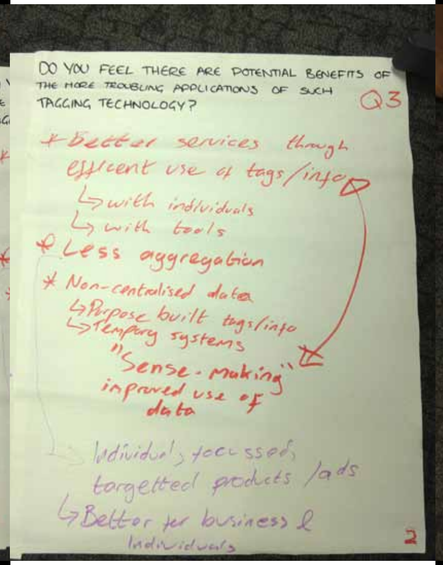
Following that realisation that data has a liquid quality and can flow from one database to another, many questions began to indicate a second level of concern for the consequences of tagging systems. Questions of ownership remain but become further coloured by a concern for mistakes, error or corruption as data is passed around and conclusions are drawn.

Participants began to think about the evergrowing occurence of tagging technologies that they may already have: travel and supermarket loyalty cards. These instances led to the development of scenarios which in turn fuelled a genuine sense of fear for the data that was already in the world and how it may be sold and corrulated with other data sets. The Preemptive Media example of an American who moves house and buys an electronic toll tag to allow him to cross a busy bridge each day in order to get to work. The scenario sumises that his car insurance company recognise that he is travelling much further each day due to the data shadow that he leaves on the toll bridge server, and triples his car insurance!

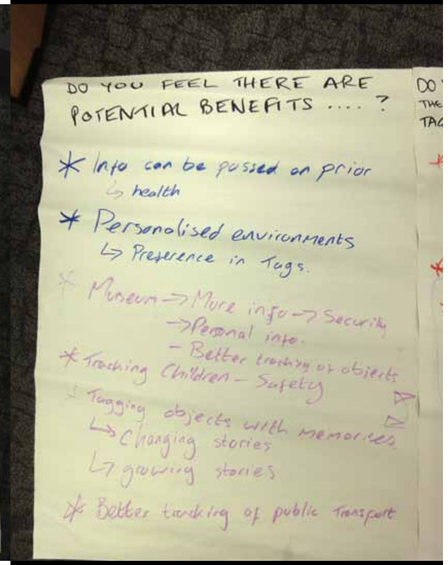
As a consequence of the realisations that data can 'travel' across networks to many different organisations, many of the conversations within this session suggested a desire to know more, and make visible any connections between those who 'trade' data. The group realised how often they had chosen to skip the terms of conditions that may reveal these relationships.



Prevention of fraud?
Improved legislation
Better profiling
Tracking (health, dementia)
Health tags
Improved health records (sync'd)
Personal tags – don't have to carry documents (simple life)
Creative ideas
User generated ideas/systems



Better services through efficient use of tags/info (with individuals/with tools)
Less aggregation, focussed on indvidual with focussed, targeted products/adverts
Non-centralised data
Purpose built tags/info
Temporary systems
“Sense-making” (improved use of data)
Better for business and individuals



Info can be passed on in advance in regard to health
Personalised environments - store your preference in tags
Museum – more info can be held and better for security and tracking of objects
Tracking children for safety
Tagging objects with memories – changing stories, growing stories
Better tracking of public transport

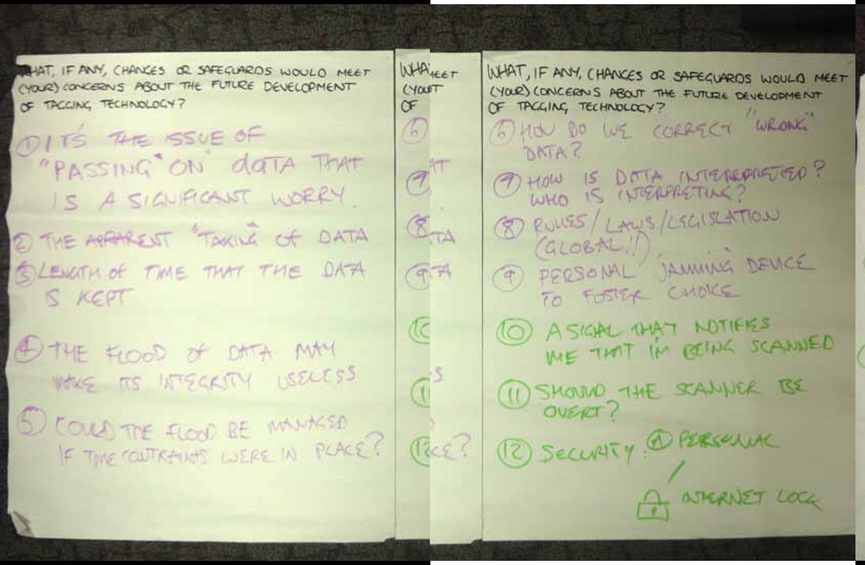
Do you feel there are potential benefits of the more troubling applications of such tagging technology?

Having discussed the implications for a digital society in which all data is openly or covertly exchanged, the teams began to take this knowledge and apply it to more constructive possibilities. To do this any previous fear of surveillance was suspended (albeit temporarily) to allow each team to foresee the opportunities that a network society would provide.

The primary conclusions centred around the potential benefits for governance and social services: from providing a more sophisticated health record system to detecting fraud.

What was particularly interesting was the way that the groups felt empowered, through understanding the way that data can flow, and could begin to construct circumstances that capitalised upon the exchange of data (e.g. within the online environment). Members of the group suggested that this could enable environments to ‘tune’ themselves to our needs, and support a more sensitive approach to our place within architectural contexts. Another team proposed that the relatively ‘dumb’ aggregation that occurs across systems could be improved if participants were involved. A further idea orientated around the potential for creatives who could draw upon a much smarter use of data to support user generated ‘idea’ systems.

These conclusions suggest a sophisticated interpretation of an internet of things in which data is streamed, swapped and recombined on a constant basis.



It's the issue of "passing on" data that is a significant worry

The apparent "taking" of data

Length of time that the data is kept

The flood of data may make its integrity useless

Could the flood be managed if time constraints were in place?

How do we correct "wrong" data?

How is data interpreted? Who is interpreting it?

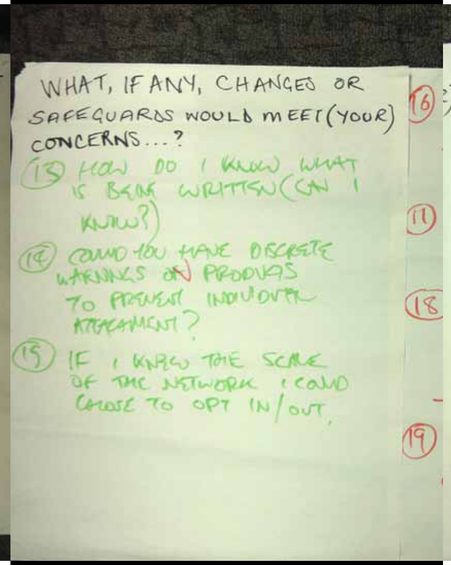
Rules/laws/legislation (global)

Personal "jamming" device to foster choice

A signal that notifies me if I am being scanned

Should the scanner be overt?

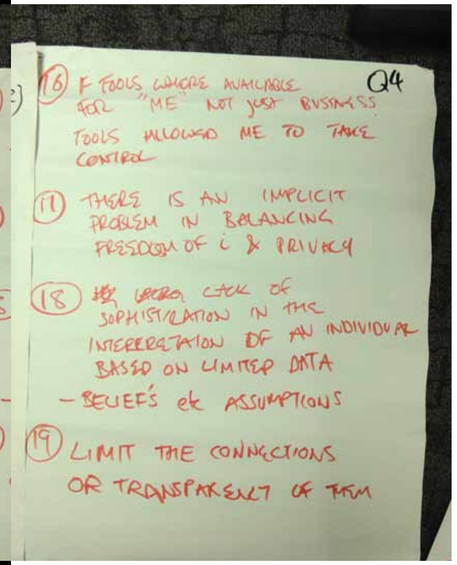
Security: Personal (internet lock)



How do I know what is being written (can I know)?

Could you have discreet warnings on products to prevent individual attachment?

If I knew the scale of the network I could choose to opt in/out



Tools which allowed individual to take control not just business

There is an implicit problem in balancing freedoms of internet and privacy

Lack of sophistication in the interpretation of an individual based on limited data, makes assumptions and does not take into account people's beliefs etc

Limit the connections or transparency of them

What, if any, changes or safeguards would meet (your) concerns about the future development of tagging technology?

Having speculated about the positive potentials of tagging technologies the final discussion returned to the genuine fears for the systems.

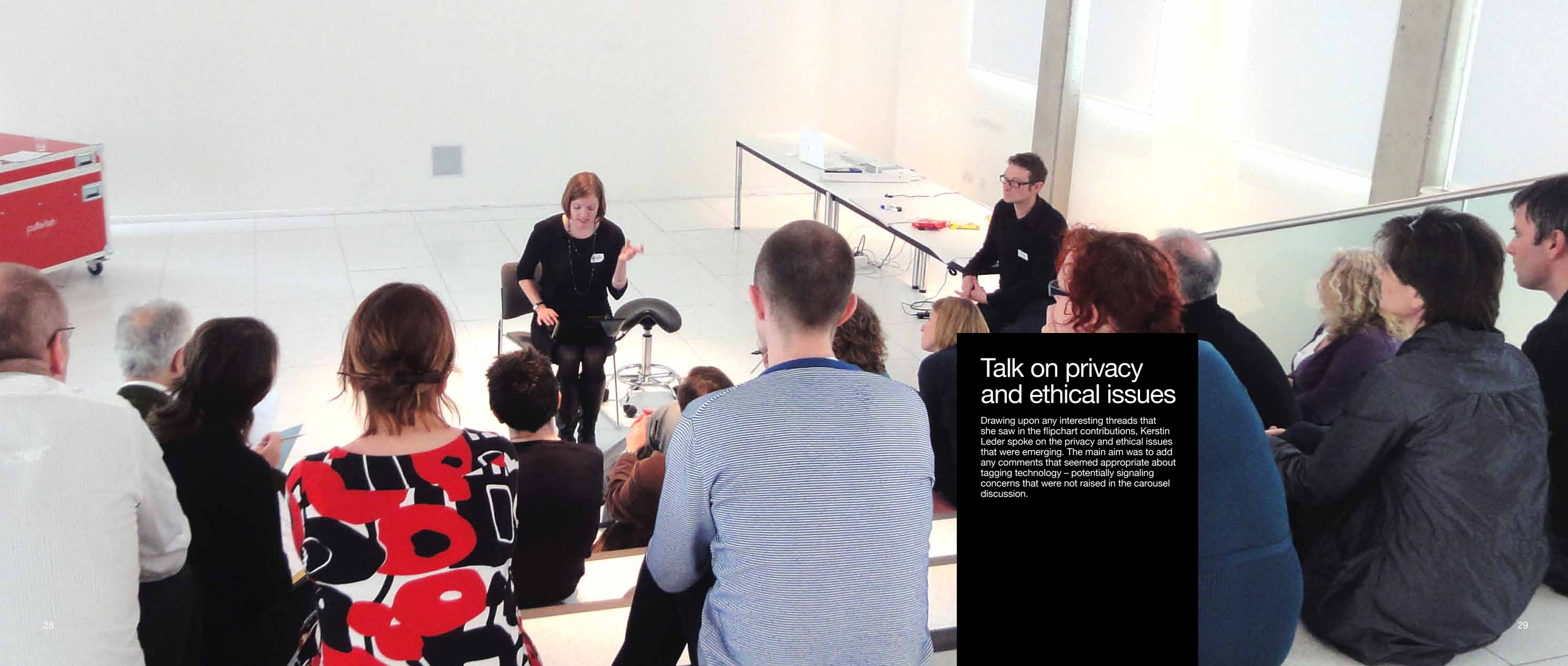
Following the explorations in previous conversations there was a deep sense that it may be all too late, and that tagging technologies are with us and are not likely to leave. Subsequently responses to the question of safeguards centred upon issues of error, transparency and the ability to opt out/in.

Some suggestions were clearly inspired by the Preemptive Media approach to 'jam' or 'hack' the system by being more vigilant to the systems, or simply choosing to opt out when services were not transparent.

There remained a perennial concern for the security and integrity of the data, and a genuine fear for the information to be hacked or simply wrong due to human error. Suggestions for change included a framework to allow the pubic to be able to check data, although other members suggested that the scale of the networks probably made this impossible.

Literacy programmes that would educate and inform the public about how data can exchange hands were endorsed by many, as was the simple idea of making scanners visible and overt in any context.

By this point the teams had realised the scale of the issues at stake, with the world becoming increasingly populated by scanners which would be able to read millions and millions of tags on a constant basis. The spatial scale of this realisation was compounded by temporal factors, and by the ability of databases to never forget – as such, the network society wasn't just conceived by workshop participants as a matter of making connections in real-time but over many years of social activity.



Talk on privacy and ethical issues

Drawing upon any interesting threads that she saw in the flipchart contributions, Kerstin Leder spoke on the privacy and ethical issues that were emerging. The main aim was to add any comments that seemed appropriate about tagging technology – potentially signaling concerns that were not raised in the carousel discussion.

RFID meets Privacy
by Kerstin Leder

Amidst NO2ID campaigns (against ID cards and the database state) and Facebook's information-sharing debacles of late, I find myself pondering about this concept of 'privacy': What exactly does it mean, where does it come from, and why are people so keen to protect it? I'm part of a generation of people whose movements are likely to have been tracked, if not since birth, then probably since early teen years (and the use of my first debit card). As a German citizen, I've had a personal ID since I was 16, and I've never quite bothered to check what kind of information the government actually holds in its nationwide database. What do border controls look at when they check my ID? Maybe that's the problem, things are already happening to my privacy and me, and I'm used to it. I now pay by credit card most of the time, I use an Oyster card (London's pre-paid and traceable travel pass) on an almost daily basis, I'm registered with a range of online services and social networking sites, and I download 'Pizza Express' and other Vouchercodes.co.uk coupons to buy one main meal and get another one free... – Granted, at times I tell white lies and change my name or date of birth when filling in such voucher forms. Why is that? Why do I have that nagging feeling that, even if I don't quite understand all possible consequences, I'm uneasy about sharing personal information with an unknown other? It seems I have a sense of privacy after all, albeit a badly informed one. In the wake of RFID and related tracking technologies, it seems necessary to dig deeper and actually try and understand why and how privacy matters.

Why privacy?
Privacy is a complex concept which often overlaps with other legal or moral rights. Within philosophy, it's most famously expressed in Aristotle's distinction between the public sphere of political activity (polis) and the private sphere associated with family and domestic life (oikos). It has been discussed as a legal right since the late 19th Century. Interestingly, at the time it was also defined as 'the right to one's personality', including what are generally deemed inner properties, such as emotions, thoughts, beliefs, and so on (Warren and Brandeis, 1890: 195, 215). Although the right to privacy can be negatively employed, for instance in order to disguise illegal or harmful doings within a family or household, it is generally regarded as providing an important sphere within which we can be free from interference by others. A more specific definition, and perhaps one that is most relevant here, is 'the claim of individuals… to determine for themselves when, how, and to what exten[t] information about them is communicated to others' (Westin in Langheinrich, 2009: 415).

Such 'information' can include anything from personal data (names, dates of birth, addresses, national insurance numbers, and so on) to what is often categorised as particularly 'sensitive' information, such as religion, ethnicity, or sexuality. Yet it also contains general interests and activities, or behaviour, and any documentation thereof.

On an interpersonal level, when I confide in a friend and this information gets passed on to others, I feel cheated and vulnerable because something I considered 'private' was made public without my consent. On a larger scale, privacy concerns are probably best understood in the relations between the individual and an authority, most pertinently the state, or big business. In itself, information is just an accumulation of facts or perceptions. What is central to the question of privacy is how such information can be used, and by whom.

As my introduction suggests, data use for commercial purposes hasn't always worried me as much as it perhaps should have – not until the introduction of RFID anyway. I figured that I was still in the position to a) ignore advertising, b) opt out of courtesy calls or e-mails, and c) make an active decision of whether I do or do not want to buy a certain product at any given time. Even if people knew my interests and preferences and used this information to target me as a consumer for maximum profit, I still felt 'powerful' enough to see through these tactics and make an informed decision about my purchases. Sometimes their 'tracking' would come in handy – I personally like it when Amazon suggests a read to me...

At the same time, my thinking demonstrates a somewhat naïve understanding of the role of big firms in our lives and the wider society. While most of the time companies may have the simple motif of financial gain, some major corporations also use their funds to support causes which I may not agree with, whether this regards political campaigning or the development of technologies which, in the wrong hands, may cause harm. Clearly, I wouldn't want any of my information associated with such corporations or their partners.

Moreover, arguably, we should not have to 'trade in' bits of privacy for more convenience or, in the case of our relationship with the state, promises of enhanced security (Caldwell, The Guardian: n.p.). As campaigners argue (amongst them, NO2ID), our privacy and personal freedom should neither be violated for someone else's financial nor political gain.

According to campaigners, there is an important principle at stake in our relationship with state authority. It is based on the belief that we are 'sovereign' citizens, and that the government is there to 'serve' the people, not to be its master. As NO2ID maintain with regard to the possible introduction of national ID cards, '[p]rivacy and freedom are yours by right and we only give governments permission to curtail these freedoms in very limited and important circumstances' (NO2ID, 2004: 2). Democracies, they argue, should neither monitor nor control all citizens all of the time, just in case a minority of individuals gets up to no good.

Most problems start when information is recorded, accumulated and held in a database for an indefinite period of time, and without the fully informed consent of the individual. The general concerns about the possible introduction of national ID cards are reflected in more recent apprehensions about RFID technologies. The fear is that large-scale data accumulation may fundamentally shift the balance between citizen and state (or commercial enterprises) and that 'gradually (in the name of "preventing terrorism", "stopping crime" or "protecting children")' more and more personal information may be gathered, including sensitive data, spending habits, political leanings, health records, and so on (ibid: 9).

One of the biggest concerns is that we cannot foresee how information will be used in the future, for instance if our political or moral landscape changes. Information which we currently deem trivial or harmless may eventually be considered incriminating or immoral.

And even at this moment in time, information which seems harmless for some can be consequential for others. Arguably, there is a misconception of a universal 'we' when talking about privacy. At the beginning of the year, there was an interesting thread on the e-mail list for the Association of Internet Researchers. It was about Google Buzz and its privacy muck-up. Google had automatically signed up Gmail users to their social network and even created possible interest groups based on people's existing e-mail contacts, without having gained consent either to include these users in the network, nor to access their contacts. At the time, researchers discussed a quote by the CEO, Eric Schmidt, who was reported to have said: 'If you have something that you do not want anyone to know, maybe you should not be doing it in the first place.' Researchers on the list considered this a highly simplistic understanding of privacy, which they saw linked to identity politics and to an 'assumed, unrecognised privilege that goes with a certain class position, geographically myopic worldview' (Burgess, 2010, on AiR-L, later rephrased on personal blog). As Jean Burgess pointed out, 'if you have ever had a stalker, an abusive ex- or current partner, or live in a community/family where it might not be safe to be outed as gay, there are plenty of things you might not want people to know you're saying or doing. It doesn't mean you "should stop doing them" - or saying them – on the Internet' (ibid).

What's new about RFID?

In his foreword to Rob van Kranenburg's 'The Internet of Things', Sean Dodson imagines David Brin's The Transparent Society in the context of RFID. He envisages two kinds of cities, inviting the reader to choose which they prefer:

'[The] City of Control [...] is a place where the deployment of radio frequency identification tags […] has become not just commonplace but ubiquitous. Objects, spaces and, yes, even people are tagged and given a unique number, just like web addresses are today. Notions of public and private have begun to dissolve; or are rendered irrelevant; notions of property

are rapidly being rethought. Security is the defining issue for those who can afford it, but also for those that cannot. Very soon, access to parts of the city is being carved off: allowing the rich and powerful entry where they please and the poor have access where they are lucky.

Every item you buy at the supermarket in the City Number One – the City of Control - is being tracked and potentially data-mined, lest there be a combination of goods in your basket that the authorities don't like. Your movements are watched, not by the use of crude cameras (which it transpires were rather poor at fighting crime anyway) but by tags embedded in your gadgets or in your clothes or even under your skin. Transmitted wirelessly and instantly they connect with satellite systems that record your digital footprint endlessly. Everything you buy, every person you meet, every move you make. They could be watching you.

City Number Two – the City of Trust – on the surface looks very similar to the City of Control. But here the citizens have been given much more control: Here pervasive systems have been embedded, but offered as an option rather than as a default. You leave your laptop on the train, no problem: with the 'internet of Things' [you] can locate it on a search engine, even arrange for it to be delivered back to your door. Similarly, just as in Brim's future city the cameras were left on at the cop station, in our City of Trust the movements of our Guardians are tracked [and] our citizens are free to switch [theirs] off.' (Dodson, 2008: 6)

Dodson's scenarios may be extreme, but they highlight the tensions of balancing RFID benefits with a protection of privacy. If the right safeguards are put into place and the technology is made as secure as possible (e.g. by ensuring that tags only disclose their identity to authorised readers), if we are careful about the amount of data stored about people and things, if individuals are given the chance to opt in and out of specific tagging and scanning instances, then RFID can play a positive and progressive role in many areas of everyday life. As our flipcharts indicate, workshop participants can imagine some of these positive futures, perhaps first and foremost in relation to more effective uses of personal data (e.g. in healthcare and emergency situations). There are visions of lighter, simpler, and more convenient lives, without having to deal with material documents. Consumers may benefit even more from personalised and tailored services. Unique identification systems may help prevent fraud. Tagging may (and already does) allow for creative applications, such as the storing of memories. Museums and other social institutions will be able to link more facts or stories to artefacts and make such information available via a number of platforms. If employed by ordinary people for their own purposes, RFID may enable more participatory and collaborative cultures.

Yet, also evident on our flipcharts, are some of the reverse possibilities: hacking and misuse by criminals; abuse by people in power; the possibility of leaks and malfunction; the aforementioned threat of commercial exploitation (and the probable harm to smaller businesses); the wealth of possible data accumulation and the associated challenges of keeping track of one's own information; the question of who accesses and controls databases; and, finally, what happens if databases become interlinked and cross-checked for personal profiling. We must remember that unique identification allows for unique targeting; it is not hard to imagine the employment of 'smart bombs', which only blow up once a 'worthwhile target' passed by (Langheinrich, 2009).

At this point in time, the conceived 'invisibility' of tags and readers forms the main threat to freedom and privacy. And already there is a shift in power between those people who know the potential and technological intricacies of RFIDs and those who, like me, would not know how to programme or encrypt a tag. A lack of knowledge and understanding automatically renders us dependent on experts.

Before conducting an operation, doctors tend to consider whether benefits outweigh possible risks. Forms of legislations which make the transparency of RFID uses mandatory may help (if applied on a global level). The question is whether safeguards are enough or whether privacy is such an important principle that the stakes of invading it are too high. Of course it is easy to grow tired of privacy concerns. New technologies or new uses of old technologies for purposes of surveillance frequently set off crusades against the invasion of personal freedom and privacy which, equally frequently and quickly, seem to subside. Despite an initial uproar about CCTV, for example, most people have learned to live with it. Zapped very much addresses the introduction of RFID as a creep, as something that will crawl into our everyday environment without us even noticing or worrying about its full implications. Because we can quickly become blasé about such technologies, it is particularly important to discuss their implications at a point when their beginnings can still be traced.

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Visioning futures with tagging technology

Chris Speed gave a vision for the creative potential of tagging technologies. The mini-lecture presented the industrial applications offered by the EU and IBM, as well as more creative applications. In this short essay Chris reflects upon the temporal characteristics of the Internet of Things. He explores how the advent of this ever-growing catalogue of object histories means that every item will be 'in touch' with its current and previous owner at all times, and suggests that whilst owners might like to 'forget' about an object, we will never truly be detached from them. The essay explores the implications of this form of social heritage and draws connections between industrial examples and the Tales of Things project.

Internet of Old Things
Chris Speed

The term, ‘Internet of Things’, refers to the technical and cultural shift that is anticipated as society moves to a ubiquitous form of computing in which every device is ‘on’, and every object is connected in some way to the Internet. The specific reference to ‘things’ refers to the concept that every new object will also be able to become part of this extended Internet, because they will have been tagged and indexed by the manufacturer during production. The technology has enabled supermarkets to track the temperature of consignments of prawns from the fishing boat that caught them, to the in-store freezers, to following the life cycle of a product from cradle to grave, shelf to landfill. Tracked and monitored as they move around the world, objects are becoming networked and ‘always-on’ (Greenfield, 2006), a condition that means it will become harder to disassociate an object from its memories.

MODELS OF TIME

Staring forwards into the future

However manufacturing isn’t geared up to handling the histories of objects, it is focussed upon the production of new objects. The innovative use of linear models of time underpinned the development of manufacturing and distribution systems throughout the Twentieth Century. Since the Industrial Revolution, time and space have been treated as discrete units in order to develop more and more innovative means of accelerating production processes. From Ford’s development of the production line to the Toyota Production System, time and space have been compressed to develop increasingly flexible forms of accumulation. But, in each case the model of time has travelled in one direction: from a cradle to a grave, choosing to pay little attention to looking backwards.

Evidence of this ‘forward looking production of things’ are epitomised in the technologically determinist slogans from recent history: We’re getting there (British Rail 1980s), Where do you want to go today? (Microsoft 1990s) or The future’s bright the future’s Orange (Orange phones 2000s). Symptoms of this cultural condition include a tendency toward disposal and the perception that one is able to relinquish oneself from belongings, and that memory and object can be easily separated. In the summer of 2009 the UK artist Jasper Joffe staged the sale of everything that he owned at the Idea Generation Gallery in London. Everything from his paintings, drawings, teddy bears, and rare books was grouped into 33 different lots, each on sale for £3,333. Part of the publicity for the show involved a short interview on BBC Radio. During this interview he described how the installation / performance offered him an opportunity to ‘re-think everything’ and to overcome a tendency of ‘getting stuck with old habits’.

‘My emotions exist I guess in my brain, not in the stuff that I own, the things that I feel... the things I do, don’t relate to the photos I’ve got in a box or an object that I keep at home, or you know, an antique teddy bear.’ Jasper Joffe, 2009

Joffe’s ease in detaching himself from an object and the memories that are associated with it, are a Cartesian trait in which the breaking down of systems into discrete units, in particular the subject and object, and time and space allow for the producer to construct a position of control. The linear model of time that manufacturing models have inherited, tends toward an industrial interpretation for the Internet of Things that, like Joffe, disassociates itself with the past and is interested in only producing the new.

Looking backwards whilst walking forward

Whilst the consumer landscape is kept ‘fresh’ with information about the new, the network properties of the Internet of Things offers other opportunities that do not adhere to a forward facing model of time, and instead offer value to objects through the recovery and retention of information from the past. It has been suggested that people surround themselves with between 1,000 and 5,000 objects. Of those thousands of objects many of them are probably not truly cared for and end up in rubbish bins or in storage. But for every owner, in almost every household there is a selection of objects that hold significant resonance, and will already connect them to an ‘Internet’ of memory and meaning. An intrinsic human trait is the process of imbuing meaning onto objects so that they provide connections to people, events and environments. Artefacts across a mantelpiece become conduits between events that happened in the past, to people who will occupy the future. These objects become essential coordinates across families and communities to support the telling of stories and the passing-on of knowledge.

Projects such as Significant Objects (http://www.significantobjects.com) attach short fictional stories to artefacts that are subsequently sold on eBay. The value added by the unique story increases the sale price of the items and changes dramatically how an object is interpreted. Similar, but a shopping ‘centre’ in its own right, is Pass The Baton (http://www.pass-the-baton.com/) a commercial project that allows people to attach a personal history to an object before selling it through the project website or an actual shop in Tokyo. Both projects subvert the orthodox use of linear time by placing more emphasis upon the provenance of an object rather than projecting an aura of newness.

Operating outside of a ‘sales context’ but firmly within the field of The Internet of Things, the authors introduce a research project that is enabling people to tag personal objects with memories, and allow other people to review them by scanning the tag. Tales of Things (http://www.talesofthings.com) allows visitors to the website the ability to upload an image of an artefact, associate it with a story (online audio, video or text file) and generate a unique printable barcode for them. Once the barcode is attached to the object, a free iPhone or Android application is able to scan the barcode and retrieve the story. The ability to add comments and further stories to artefacts as they are adopted by new owners offers a network of memory in which things are connected by subject and not time.

Tales of Things technology was used to develop a physical example of the Internet of Things during May 2010. The RememberMe artwork was a collaborative project with the Oxfam shop charity shop, in Manchester. During the FutureEverything Digital Arts Festival a research assistant based in the shop, asked people who dropped things off to tell a brief story about one of the objects into a microphone: where they acquired it, what memories it brings back and any associated stories. These audio clips were then linked to an RFID tag and QR code and attached to the items as they joined the shop’s stock. Visitors to the shop, including conference delegates were able to use bespoke RFID readers, or their own smart phone to browse artefacts that were displayed amongst the many thousands of other objects. Labels highlighted the RememberMe objects and, once triggered, speakers located in the shop replayed the previous owner’s story, evoking a ghost from the past. Once tagged, the objects were in the public domain for purchase by other members of the community. The project’s iPhone and Android apps allow new owners to access (or add to) the story for years to come.

MEMORY ECONOMY

The projects cited evoke an alternative economy, one in which the arrow of time reflects back to use memories and history as a means of adding value to artefacts as they pass through the society. And, as objects become tagged and catalogued within networks, the Tales of Things project offers a ‘bottom up’ approach allowing the public to tag objects and ensure that the Internet of Things isn’t just focussed upon new items, but identifies the value of old things. This temporal ‘turn’ offers a significant shift in the linear cradle to grave production and consumption path that has underpinned the 20th century, one that in contrast offers a ‘memory economy’ in which value isn’t predicated on the idea of the ‘new’, and the assumption that we can detach ourselves from things in order to move into the future without ties to the past is vanquished.

ACKNOWLEDGMENTS

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Future visions for the technology

A full group brainstorming session that aimed to generate as many creative ideas about potential future applications for tagging technology as possible. Led by Dr. Wendy Faulkner, the quick and fast flipchart session was encouraged to be impulsive and without judgement. It didn't matter how far fetched the ideas were!

Brainstorming 1

Memory 'storage'.

tagging images

- photos
- history/ies
- secret messages

enhanced experiences (augmented reality).

Reading/writing

Brainstorming 2

- fabricating - info about
- subverting official messages
- 'guerilla tagging'
- 'film credits' with/on objects
- recipes for food items
- gravestones
- creditation on agricult. products

Brainstorming 3

- objects' similes
- MPs - are they working?!
- different perspectives on an object.
- reviews for book.....
- entry to workshops (paperless)
- clothing: wardrobe/matching options
- DIY community tagging (bottom up) eg activities

Brainstorming 4

travel itineraries..

national identities - to assume...

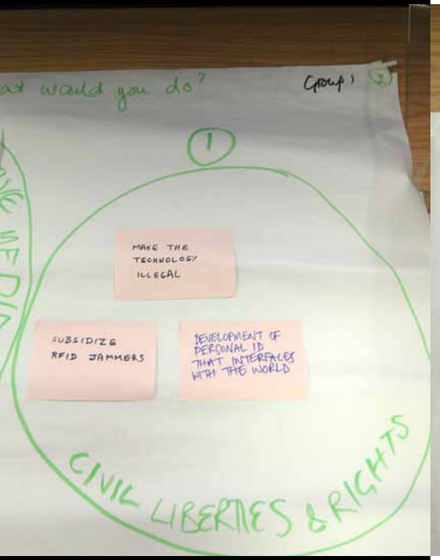
option to add to stories attached to an object.

What would you do with the technology?

Before breaking into four smaller groups, people were asked which of their own priorities or potential applications excited them most. They were asked to write these on Post-It™ notes and take them into smaller break-out groups.

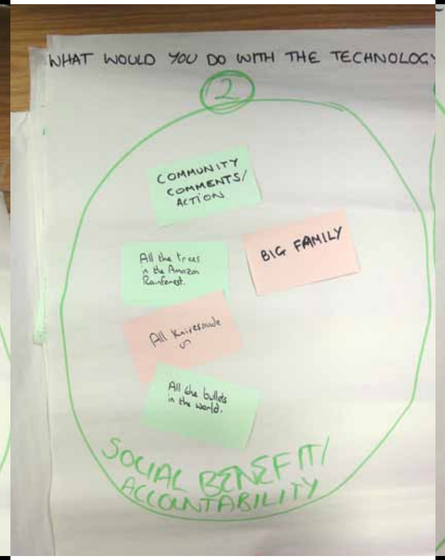
Facilitators for each break-out group asked each person to put their Post-It™ notes on to a flipchart, and to explain briefly why they favoured this particular option for the technology. Other members of the group were encouraged to comment on what was good about each choice.

Finally, groups were asked to 'cluster' the Post-It™ notes and develop headings for them.



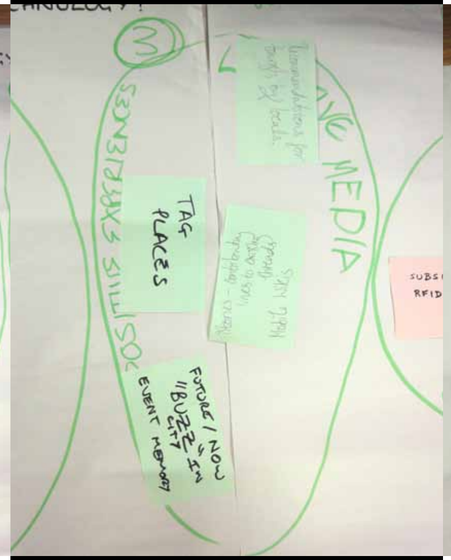
Civil Liberties and Rights

Make the technology illegal
Subsidise RFID jammers
Development of personal ID that interfaces with the world



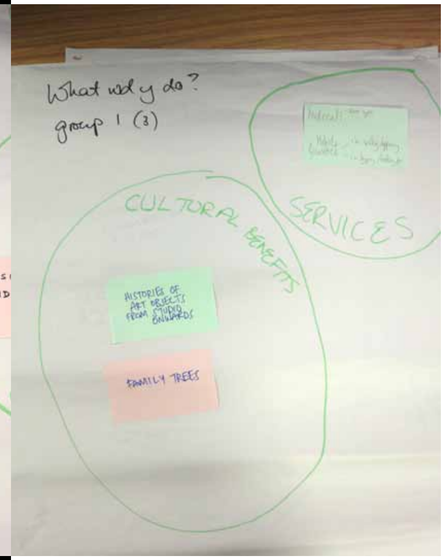
Social Benefit / Accountability

Community comments/action
Tag all the trees in the Amazon rainforest
Tag all knives and bullets in the world
Big Family idea



Locative Media / Positive Experiences

Tag places
Recommendations for tourists by locals
Create a “buzz” in city with event memories of future and past events
Mobile Wikis
Tagging stones, contributing links to existing threads



Cultural Benefits

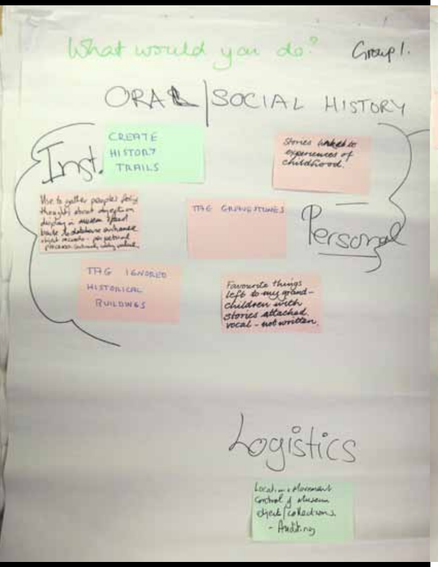
Histories of art objects created in the studio and their life onwards
Family trees (including biological links)

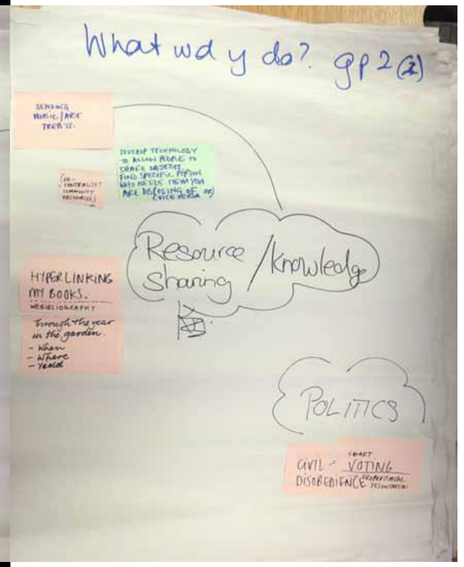
Services

Mobile Gumtree (I am selling / I am looking for)
Medical – blood types etc

Group 1

Group 1 concentrated upon civil and social contexts, offering a balance of control and cultural opportunity to safe guard misuse of the technology, whilst offering benefits for the public.





Oral / Social History

Institutional

Create history trails

Use to gather people's feelings/ thoughts about objects on display in museum and feedback to database to enhance object records – perpetual process continually adding value

Tag ignored historical buildings

Logistics (tag movement of objects and use for auditing)

Personal

Tag gravestones

Stories linked to experiences of childhood

Favourite things left to my grandchildren with stories attached (vocal)

Resource / Knowledge Sharing

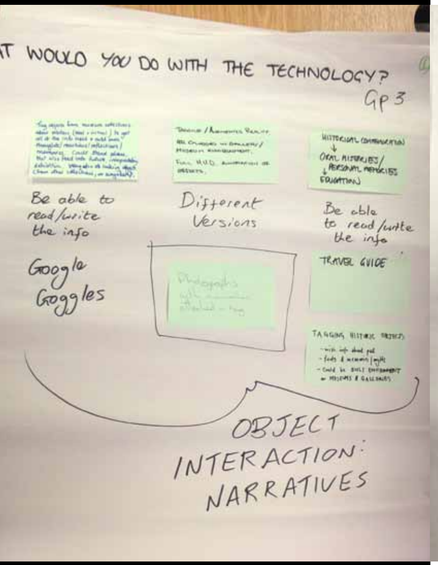
Develop technology to allow people to share objects, find specific person who needs item you are disposing of or vice versa

Politics

Civil disobedience, smart voting, opportunity for proportional representation

Group 2

The potential for tagging technologies to offer benefits for historical and heritage communities dominated group 2's discussion. Understanding the temporal and network qualities of a world of tagged objects offers new modes of practice for museums and cultural centres. Inter-generational connections, cultural identities and social memory all become rich subjects to explore.



Object interaction/narrative

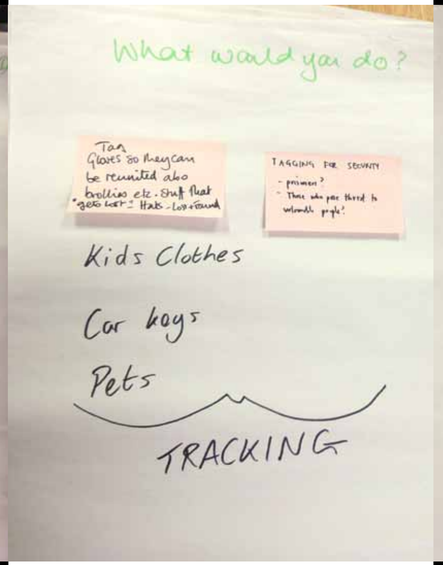
Tag objects from musuem collections, allow visitors (real and virtual) to get all the info held and add own thoughts/reflections/ memories

Could stand alone but also feed into future interpretation exhibition. Way also of linking objects (from other collections or anywhere)

Tagging/augmented reality (AR glasses in gallery/museum environment)

Full HUD annotation of objects

Attach tag to photos with memories



Tracking

Tags in gloves so they can be reunited, also brollies

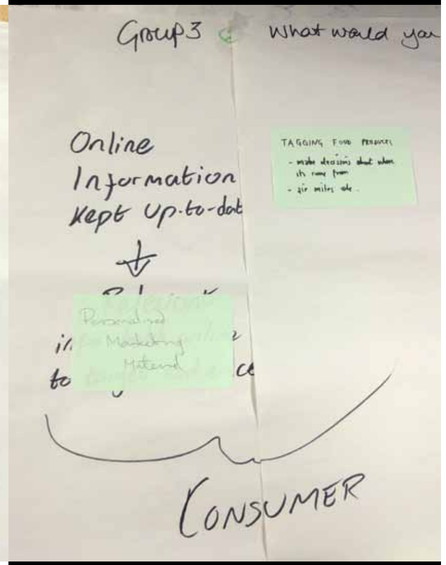
Stuff that gets lost and always appears in lost and found

Tagging for security – prisoners and those that pose a threat

Kids clothes

Car keys

Pets



Consumer

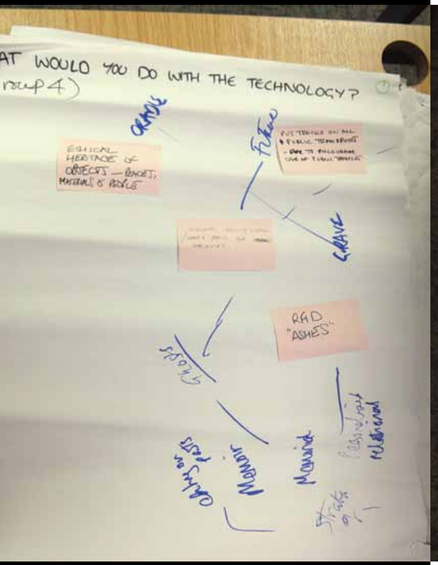
On-line info kept up to date

Personalised marketing material

Tagging food products – making decisions about where it has come from and food miles etc

Group 3

A trilectic of bbject interaction/narrative, tracking and consumer issues led to a rich discussion for group 3. Understanding the implications for material and immaterial consumption that is networked through artefacts brought forward some interesting visions of the user experience.



Grave

Ethical heritage of objects – people, places, materials

RFID “ashes”

Future

Manual of how things work / spare parts for appliances

Track all public transport to encourage more people to use it

Reading and Writing Data

Democratising the input of information

Potential for wider input

User generated discussion and ideas attached to places

Interpretation / Memories

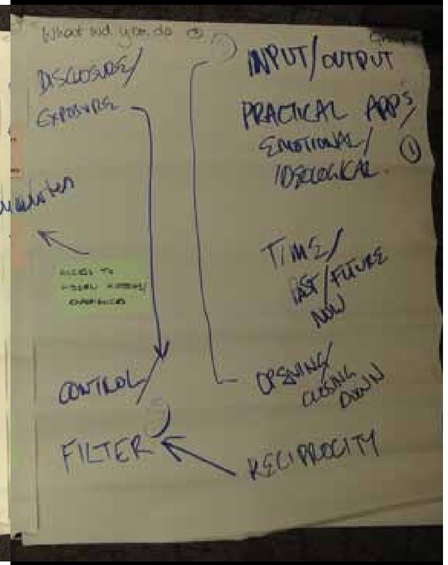
Put security tags on our cast collection to be able to tracks movements in building

Tagging personal objects to preserve memories linked to the object

Tagging old photos to link to audio/visual/info about the image

Access to hidden histories / experiences

Seek and find tags



Disclosure / Exposure

Control / filter

Reciprocity

Input / Output

Practical apps

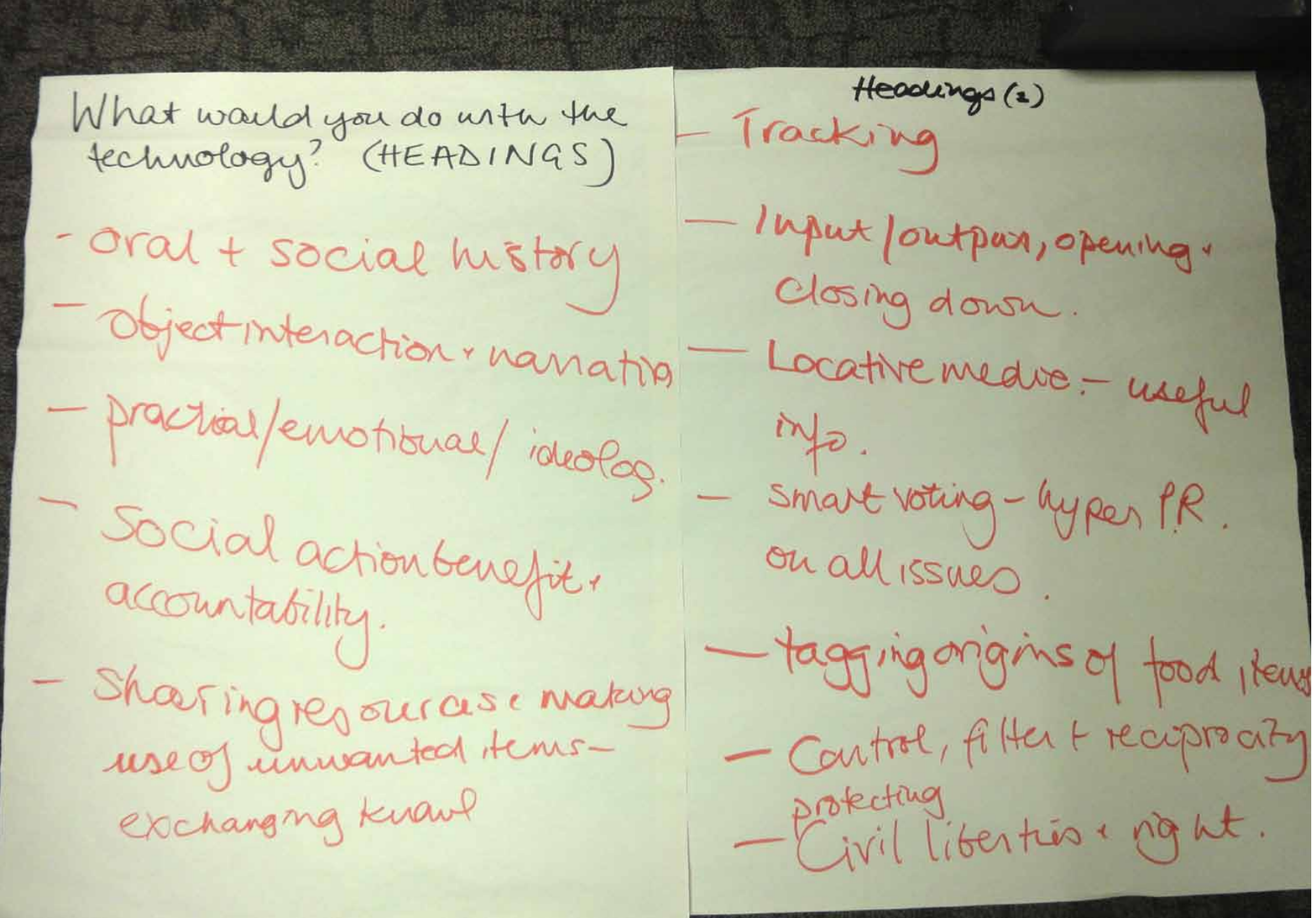
Emotional / ideological

Opening / Closing down

Time / past / future / now

Group 4

An attribute that is present in any discussion of networks is reciprocity, and group 4 explored the ‘give and take’ dimension to the Internet of Things. Interesting concepts such as the ability to read and write to a database were raised, and were used to discuss political issues such as control. Projects such as the Wikipedia offered examples in which the public are encouraged to contribute to a database or knowledge set, but the group found that it was rare to be asked to contribute to many other databases other than public photo libraries or YouTube. In the end the group discussed how they might be given access to databases so that they can amend and extend entries about themselves.



Summary of group headings

Following a feedback session involving all participants a list of the key subject headings was collated:

Oral / social history
Object interaction and narration
Practical / emotional / ideology
Social action benefit, accountability
Sharing resources and making use of unwanted items
Tracking
Inout / Output, opening, closing down
Locative media, linking to useful info
Smart voting, hyper PR on all issues
Tagging origins of food items
Control, filter and protect
Civil liberties and rights

This, the penultimate session, revealed an interesting breadth of ideas and potentials for tagging technologies.

The themes embody many social dimensions that indicate an understanding of the networked qualities for the subject, but may also point to a reaction against the corporate use of data.

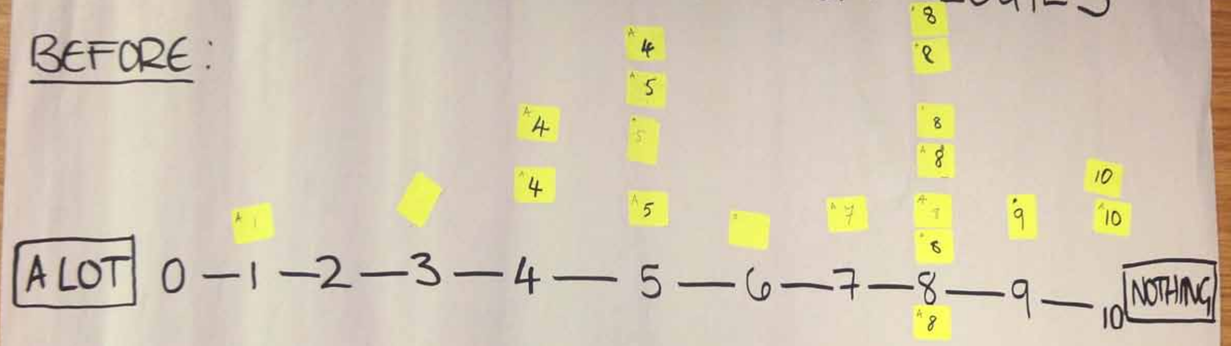
Evaluation and reflections

As well as asking delegates to complete an evaluation form, facilitator's handed out coloured labels to be placed upon two sliding scales to describe how they felt about the following issues: "excited / concerned about tagging technologies" and "knew about tagging technologies".

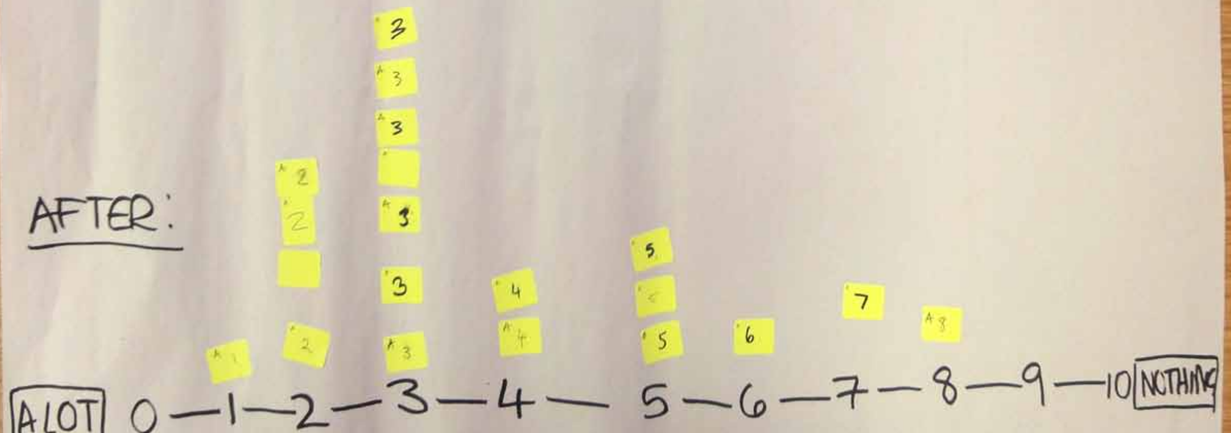
The delegates had been asked to contribute to the same scales at the beginning of the day. The scales gave an indication of the impact that the day had had upon people.

A/ I KNOW ABOUT TAGGING TECHNOLOGIES

BEFORE:

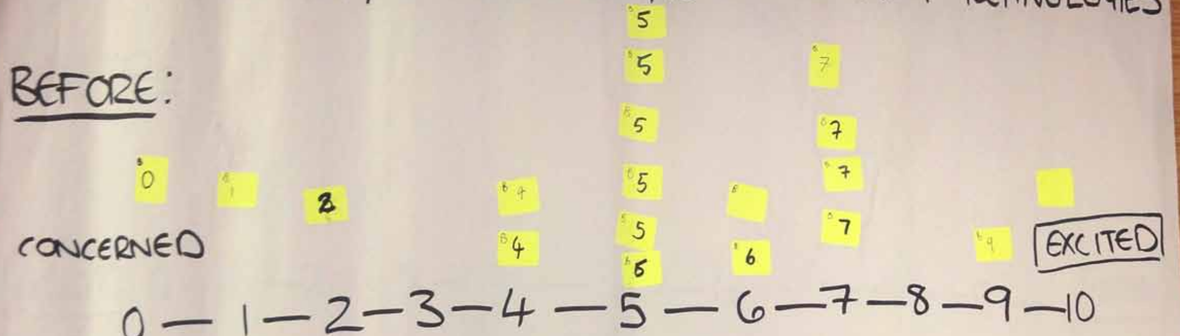


AFTER:



B/ I AM EXCITED BY/CONCERNED ABOUT TAGGING TECHNOLOGIES

BEFORE:



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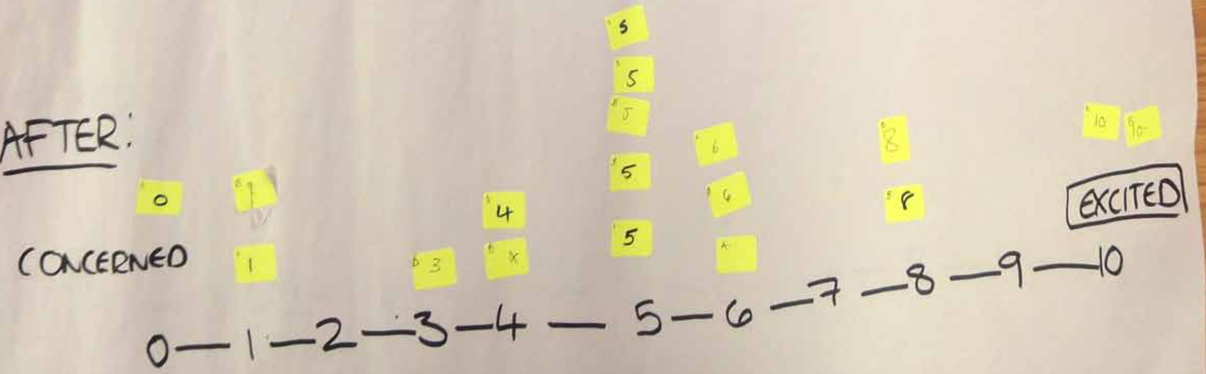

Reflections

In general, the discussion formats which structured the Tagging Technologies event enabled some extensive brainstorming which raised almost as many questions as it answered about the technologies and their uses. The semi-structured conversations meant that the scale of a tagging culture became evident, and the teams dealt with big questions on a relatively broad level. With more time, we could have been able to close in on a number of RFID applications to explore exactly how these might work – in terms of the processes, technologies, and social agents involved.

We conclude from delegate feedback and carousel discussions that participants were keen to be more actively involved in conceiving and controlling tagging applications, and that there is a need for more information and discussion events in the future. It was evident from every aspect of the short workshop that people demanded more transparency in prospective uses of RFID, and that they'd like to have a say regarding worthwhile uses and best practice. Unless RFID technology is explained, explored and discussed in more detail – with ordinary people, rather than merely amongst experts and decision-makers – some (perhaps warranted) distrust is likely to remain. Or else, there is potential for apathy and public disengagement, which in turn may aid bad practice, exploitation, and misuse.

Despite obvious time constraints, participants very quickly identified and grasped the qualities and potentials of the systems involved. They uncovered the main threats and opportunities in the creation and uses of large-scale databases (rather than in the RFID tags themselves), and their discussions exposed important questions of power and control. What was refreshing about the work of the participants as a whole was their ability to identify constructive strategies to, at times, escape the inertia of fear and worry that so often becomes a discussion about a Big Brother state. Through gaining an understanding of the fluid nature of data across networks, the teams managed to sustain a balanced but insightful perspective upon the implications for a ubiquitous world.

The temperature scales at the start and end of the event indicate that participants felt the workshop had enhanced their knowledge and understanding of RFID. However, either an uncertainty or indecisiveness remained with regard to the benefits/disadvantages of a widespread introduction of tagging technologies, perhaps with a slight tendency towards being more concerned than excited in the aftermath of the session. Different members of the audience naturally benefitted from the workshop in different ways.

In addition to the insights that the academic team have gained into the awareness of tagging technologies, the workshop has also opened up a series of important questions about how best to handle the public engagement for what might be described as a sensitive subject.

Products are tagged already with Barcodes, and the progression of this into RFID / QR codes is inevitable. However finding the appropriate level with which to encourage public 'buy-in' is the tricky bit and remains the Holy Grail for a huge amount of cultural and commercial organisations. The workshop provided an intelligent interface from which we were able to illicit and document the tensions present within the subject. The juxtaposition of the Preemptive Media depiction of 'RFID creep' against the more socially beneficial Tales of Things project offered a balanced spectrum within which people could find their own position. In recent years the UK public has been exposed to a series of scientific / political ideas that have been handled with limited skill and sensitivity. From the fear of mutant genetically modified crops, to the grey goo of nanotechnology, public engagement with new technologies is often dealt with as an after thought that results in poor understanding of the science and cyncisim for the governments who fund it.

RFID and database technologies can be quickly associated with many deep fears for the tagging and cataloguing of people, and the challenge to manage these issues remains significant. The tagging technologies event was only one small contribution to addressing how academics might begin to enagage the public in an unprejudiced but informative manner.

Time will tell how fast society embraces an Internet of Things, but whatever the catalysts are that encourage everyone to take part, we hope that there are many more iterations to it beyond the need to increase profits and extend the efficiency of multi-national corporations.


Feedback
FLIPCHART
CHRIS WILKINS

General feedback and comments:

“RFID good if the individual is in control. RFID bad if government or big business is in control.”
“Application was fun/make ideas more tangible. Work on making that work better.”
“Very interesting and informative.”
“Great event, really enjoyed it- thanks. If maybe more of a mix of participants would spark more ideas, although saying that, I don’t know every one’s background...”
“Thoroughly enjoyable experience.”
“Potential for opening up info on objects and consumer goods, their source, their carbon footprint etc. I like that idea.”
“The potential interpretation of historical objects”
“Love the creative / possibilities research”
“What about people who have an aversion to technology, no smart phone etc?”

What did you hope to get out from participating in the workshop?

“Knowledge and understanding, potential uses.”
“Understand how RFID might work”
“Hearing other people’s points of view”
“Knowledge”
“More about the practicalities but also the current level of personal tagging”
“Ideas for my masters dissertation in urban risk- 100% achieved”
“Didn’t have a preconception other than more knowledge/ understanding about the tech.”
“Opening horizon, varying perspectives”
“Basic understanding of RFID and its potential applications.”
“To learn more about tagging technologies and specific applications. To learn how it could be applied more specifically to enhance museum and gallery experiences.”
“More about the practicalities but also the current level of personal tagging”
“I guess I was curious, thought it was an interesting topic.”
“Sparked some interesting ideas about using RFID tags and some background in ethical issues etc.”
“More background knowledge.”
“A great understanding of tagging technologies”
“To learn more and share with others at the Scottish Storytelling Centre”

What did you learn from the workshop that you didn’t know before?

… about tagging technology?
“The potential uses. That it has positive benefits”
“That it can be helpful”
“LOTS!”
“If Wal-Mart are pushing it, it must be bad for people at large”
“That it’s already being used a lot. How many things it can be used for.”
“Its range, applications, cost and function”
“The relationships and linkages are real to me now- and the possibilities!”

… about concerns about tagging technology?
“Possibility of sinister social/political and criminal abuse”
“Issues surrounding the law and privacy are huge. This seems to be such a problem even before adopting the tech.”
“Databases could be cross-referenced- data mined. Complex combination of data, great resource for researchers, troubling for individuals’ agency/status.”
“I didn’t have many in the first place, have quite a few now!”
“Even worse than ID cards because people will be less aware of usage.”
“That there are many benefits, but there needs to be more control about how the information is accessed/who by.”
“The sheer scale and complexity involved.”

Did the workshop change your views on tagging technology in any way? Please specify

“Not my view so much as my knowledge”
“Better insight, thinking about civil liberties/rights.”
“Not really”
“Made me more concerned about misuse and privacy issues”
“Still think it is both exciting and worrying at the same time.”
“Exciting in the sense that it opened my mind to different positive/useful applications e.g. food tagging- info about products or read/write ideas.”
“More information gathering. My views haven’t changed as I don’t feel I got much information on the realities of what is happening here today.”
“The knowledge gained helped change unthinking fear to more positive attitudes.”
“Yes opened up to positives and negatives.”
“Maybe. The use in specific areas appears beneficial.”
“Raised awareness of challenges.”
“Wider applications and implications had only thought about it as regards heritage sector before (not so controversial).”
“It initially made me think about the negatives of so much information about me being available, potentially too many. However, I still feel positive about the technology.”
“Painted the landscape of possibilities and opportunities for non-commercial subversion.”
“Poss. slightly more concerned than I was before.”

Credits

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